TCVN **NATIONAL STANDARDS**

TCVN 10299-4:2014

1st Edition

ADDRESSING THE POST-WAR CONSEQUENCES OF MINE/ERW

PART 4: NON-TECHNICAL SURVEY & TECHNICAL SURVEY

HANOI - 2014

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FOREWORD

TCVN 10299-1 :2014 was drafted by the Technical Standard Department of Engineering Command, requested by the Ministry of Defense, appraised by the Directorate for Standards, Metrology and Quality and published by the Ministry of Science and Technology.

TCVN 10299 :2014 – *Addressing the post-war consequences of mine/ERW*, includes 10 parts:

- TCVN 10299-1:2014, *Part 1 : General provisions*;
- TCVN 10299-2:2014, *Part 2: Assessment and Accreditation of demining organizations*;
- TCVN 10299-3:2014, *Part 3: Monitoring and Evaluation of demining organizations;*
- TCVN 10299-4:2014, *Part 4: Non-technical Survey and Technical Survey*;
- TCVN 10299-5:2014, *Part 5: Demining safety*;
- TCVN 10299-6:2014, *Part 6: Clearance of mine/ERW;*
- TCVN 10299-7:2014, *Part 7: Explosive Ordnance Disposal (EOD);*
- TCVN 10299-8:2014, *Part 8: Medical support for demining operations*;
- TCVN 10299-9:2014, *Part 9: Investigation of demining incidents*;
- TCVN 10299-10:2014, *Part 10: Management of information;*

Addressing the post-war consequences of mine/ERW- Part 4 : Non-technical Survey and Technical Survey

1 Scope

This standard specifies requirements and contents for the non-technical survey and technical survey of UXO/Landmine contamination and define the responsibilities of relevant organizations, agencies.

This standard is applicable to demining organizations and other relevant entities.

2 Normative references

The following normative references are vital for the application of these standards. For dated references, the cited version shall be applied. For undated references, the latest edition of the normative documents referred to shall be applied, including amendments or supplements (if any).

TCVN 10299-1:2014 – *Part 1: General provisions*

3 Terms and definitions

This standard uses terms and definitions specified in TCVN 10299-1:2014 and the following terms and definitions:

3.1

Non-technical survey

Survey activity which involves collecting, analysing and evaluating new and/or existing information about mine/ERW and contamination status within a certain area

3.2

Technical survey

A detailed intervention with clearance or verification assets into an SHA, or a part of an SHA identified after the non-technical survey has been conducted.

4 Elements of Non-technical survey & Technical survey

4.1 General principles

4.1.1 Non-technical Survey (NTS)

4.1.1.1 NTS is conducted in all SHAs or areas claimed to be contaminated with mine/ERW. The extent of the suspicion can differ, and the suspicion can be claimed by different sources, including

- local people
- military forces, and police,
- accidents, incidents,

- other signs of mine/ERW.

4.1.1.2 NTS is conducted to collect information and evidences related to contamination of the areas that have been suspected or reported with contamination in order to accurately identify and mark the actual contaminated areas within the SHA.

4.1.1.3 An area identified as a CHA is subject to further technical survey.

4.1.1.4 In a situation in which mine/ERW is found in the area previously identified as safe during NTS, it is required to review compliance of the previous survey procedure with a view to come to a decision to reclassify the surrounding areas.

4.1.2 Technical Survey (TS)

4.1.2.1 TS is conducted to estimate the area of an hazardous area, to help confirm whether an area (or part of an area) is contaminated or not, and to provide the requirements for clearance in the hazardous area.

4.1.2.2 Any demining equipment can be used during the TS as long as it can ensure the provision of accurate, reliable information regarding the hazard level in the area.

4.1.2.3 In a situation in which mine/ERW is found in the area previously identified as safe during TS, it is required to review compliance of the previous survey procedure with a view to come to a decision to reclassify the surrounding areas.

4.2 Purpose of NTS & TS

4.2.1 Purpose of NTS

4.2.1.1.Purpose of NTS is to collect, verify and thoroughly analyze all new and old information related to contamination of the areas that have been suspected or reported with contamination, in order to accurately identify and mark the actual contaminated areas for follow up intervention.

4.2.1.2 NTS is conducted in order to:

- To confirm the presence of landmine/UXO at SHAs which will then require clearance. (identify the the types of hazards and the bounderies of the hazardous areas)
- To increase the confidence to help relevant authority justify decisions regarding the implementation of demining operations
- To give the local people and relevant entities sufficient confidence to use land without resorting to full clearance

4.2.2 Purpose of TS

4.2.2.1 TS is the most important component of the demining process and is normally implemented prior to the implementation of clearance in a location/ region selected as a priority for a socio-enocomic development initiative. The list of prioritized locations is stored at the National Database Center.

4.2.2.2 TS is conducted in order to:

- To collect and verify evidences on the presence of mine/ERW in a sufficient and accurate manner to make the right decisions on clearance;

- To confirm the presence of mine/ERW (identify types of hazards and bounderies of hazardous areas) at the hazardous areas identified in the NTS which will then require clearance.
- To release part of or the entire area of the SHA in which no evidence has been found through TS.

4.2.2.3 Summary and evaluation of results based on information collected during TS. The information includes:

- Status of local security, roads, terrain, infrastructure
- Landmine/UXO contamination impact on the local socio-economic development
- Demand and the necessity for clearance

4.3 Requirements for the results and information of NTS & TS

4.3.1 Requirements for the results of NTS & TS

4.3.1.1 Identify the level of contamination or the estimation of the density of the contamination in the SHAs

4.3.1.2 Confirm the accuracy of the available information of the surveyed area; the possibility to confirm whether an area is contaminated or not depends much on the quantity and quality of the information collected during the NTS & TS.

4.3.1.3 The ultimate purpose of NTS & TS is to confirm that the land previously claimed to be contaminated is either in fact safe to use or required clearance.

4.3.2 Information collected during NTS & TS

4.3.2.1 The information collected during NTS & TS must be recorded in the questionnaire (See Appendix A) and other documents (See Appendix B, C,D)

4.3.2.2 NTS & TS will provide the following information:

- Confirmation of the current or probable density of mine/ERW within the hazardous area;
- Confirmation of existing recorded information;
- Assessment of the ground in terms of soil and metal contamination
- Definition of the type, condition, and extent of hazard;
- The suggested depth of clearance for specific areas within the CHA. This should be clearly indicated in reports and maps; and
- Activities conducted within areas, including equipments used, digital maps, etc
- Location where mine/ERW was identified and shape of the mine/ERW (if any)
- Location(s) of any mine, ERW or other devices found/destroyed before or during, the technical survey
- Prominent natural features such as high ground, water courses, trees, etc.

4.3.2.3 All the information collected shall be sent to the National Database Center for entering into the database system and mapping the contaminated areas.

4.3.2.4 When clearance is conducted independently, the information obtained from previous NTS & TS phase should be summarized as technical specifications for planning and managing any follow-on demining or land release operations

4.4 Documentation

4.4.1 Survey plan and methodology shall be prepared by the organization assigned to conduct NTS & TS and shall be approved by competent authority.

4.4.2 Topographic maps should be used to indicate the location of the CHA and in particular to mark the CHA's reference points or cleared areas (or landmarks). Such information should be recorded by GPS, or marked on a topographical map. If topographical maps are not available, this information should be recorded on locally produced maps.

4.4.3 A sketch map of each CHA shall include sufficient detail about the location and identification of the surveymarkers and the hazard marking system. Other relevant information which will assist future clearance activities should be included

4.5 Equipment used in the NTS & TS

- Prodding.

- Mine locator

- Bomb locator

- Global positioning system (GPS).

- Other auxiliary devices, such as: mapping tools, vehicles and other means of transportation, PPE; medical and first aid equipment, means of communication, etc…

- Several assets might be used in the NTS & TS in order to support the collection of accurate information on mine/ERW contamination at CHAs.

4.6 Requirements for the survey teams

4.6.1 Technical staff

4.6.1.1 Selected properly, have good health, a stable will, organization and principles, strong sense of responsibility, and prudent and detailed-focus working behavior.

4.6.1.2 Accredited to conduct demining activities and have at least 1 year experience.

4.6.1.3 Professionally trained to:

- Comprehend the structure and operating principles of common mine/ERW;

- Understand technical procedures, safety rules for the demining process

- Understand technical features, proficient use of equipment and specialized facilities

4.6.1.4 Receive additional training before task assignment.

4.6.2 Equipment & facilities

4.6.2.1 Equipment used during the survey must be tested periodically by a center for measurement and quality assigned by NMAA and accredited to be qualified enough for demining operations. The purpose of accreditation is to confirm that the equipment and tools used are appropriate and can ensure safety during demining process.

4.6.2.2 The equipment and facilities used during the survey must be guaranteed in terms of quantity and conformity with task requirements and personnel deployed.

4.6.3 Members of NTS & TS teams

4.6.3.1 Survey teams must come from an organization with valid working permit. Those teams must be staffed adequately and sufficiently, equipped with necessary equipment and facilities which can be adjusted to to meet the requirements and conditions of the surveyed areas (in terms of topography, geology, hydrology).

4.6.3.2 Normally, an NTS or TS team includes:

- 01 team leader;

- 01 deputy team leader;

- 01 medical staff

- 5-10 technical staff.

4.7 Implementation methodology

4.7.1 Preparation period

4.7.1.1 Develop implementation and operational plan to submit for competent authority for approval.

4.7.1.2 Develop survey tools (such as: questionnaires, reporting templates, TS logsheet, etc.)

4.7.1.3 Contact and subcontract local relevant agencies regarding the implementation plan and execution time.

4.7.1.4 Prepare personnel, equipment and facilities and conduct the survey as contracted.

4.7.2 Implementation of NTS & TS

4.7.2.1 NTS

4.7.2.1.1 Interviewing commune leaders

- Local authorities (at commune, district level) are responsible for supporting the implementation of NTS in the area under their management. Relevant local officers are responsible for providing surveyors with demining-related documentation and archival records upon request. They also help to select local key-informants who obtain wide knowledge of the contamination situation, demining operations conducted as well as other information to participate in the survey process.
- Normally, there are at least 5 local officers participating in the interview of commune leaders, including leaders of commune/ward/town people's committees, those in charge of military andpolice, land surveyors, and statistics officers. The surveyors need to conduct in-depth interview on the local contaminated situation, current suspected hazardous areas, cleared ares, or

mine/ERW accidents occurring in the area, etc. The surveyors need to adequately fill the answers in the questionnaire.

- Upon completion of the interview, the commune leaders are requested to show on the map the SHAs, CHAs, cleared areas and the areas that mine/ERW have been found/encountered.

4.7.2.1.2 Interviewing key-informants

- The interview of key-informants is conducted by NTS team (surveyors) with support from local leaders/officers. Local key-informants include representatives from each village in the commune/ward/town and must be elderly people living the longest in the locality who have wide knowledge of events occurred during the wartime, the contamination status during the wartime and at present, and the local land use, etc.
- The interview is conducted in a sequence with each group/key-informant, at each village of each commune. Every information will be collected and synthesized through a questionnaire (See Appendix A).
- During interviewing process, information on contaminated areas, reference points or cleared areas will be marked and drew on the commune topographic (or administrative) map. The detailed information is also noted down in the questionnaire, other information on mine/ERW impact is also collected.

4.7.2.1.3 Locating contaminated areas and marking the locations of mine/ERW on the map

- It is required to work with local authority to accurately identify the bounderies of commune/ward/town, and specify name and location of villages on the commune map.
- After locating and marking the contaminated areas on the map, it is required to focus on reference points to identify in details the size and total contaminated areas, type of contaminated land, types of mine/ERW found, etc.
- Local key-informants provide information on the locations of mine/ERW accidents (of human and animals) occurring in the locality, the surveyors need to ask for other information to clarify the contamination situation in each area within the commune territory.

4.7.2.2 TS

4.7.2.2.1 Selection of surveyed area

a) The surveyed area must be selected based on the following information::

- Location, area (estimated), characteristics of contaminated areas marked on the commune map.
- Density (if any), types of mine/ERW and level of danger at the contaminated area;
- Area of great value in terms of socio-economic development, or type of land is appropriate with local cultivating capacity.

b) Requirements for selection of surveyed areas:

- Based on the local contamination status and combine with local proposals to serve the socio-economic development plan;

- TS is only conducted in suspected hazardous areas;
- The surveyed area must represent a typical contaminated area, such as: annual crop land, unused land, pasture, forest or represent other geographic characteristics of the entire area.
- TS is only conducted in construction land, homestead land, perennial crops land if it is permitted by the land owners..

c) The surveyed areas are at least equal to 1% of the total contaminated area.

d) Furthermore, to ensure safety during TS, it is required to study contamination status and types of mine/ERW that may be encountered in the area through existing data to estimate possible mine/ERW hazards before entering, especially unused or dense vegetation areas.

4.7.2.2.2 TS Implementation

a) Identify actual contaminated areas to be cleared:

- Based on the terrain of the SHAs, divide them into small polygons with appropriate sizes on the map with the assistance of GPS equipment
- With GPS assistance, deminers start searching the presence of mines/ERW in some polygons in correlation with the expected level of contamination (maximum 50% of the total polygons) or all the polygons in the suspected area (if mine/ERW are found) using surface or sub-surface detectors. The selection of equipment will depend on the types of mine/ERW identified through NTS. The following principles are applied:
    - The TS team will start detecting from the centre of the area and then spreading out in all directions. If the conditions and contamination characteristics are not allowed, the TS will be implemented similar to the clearance in dangerous areas.
    - Each searcher then carries out a “random search” with an attempt to locate the evidence of mine/ERW. Once a team member locates evidence of mine/ERW, the team leader is informed and the search ceases, the team then moves to the next box. If no evidence of mine/ERW is foundwithin a 30-minute time period the team moves to the next box
    - Once a box has been completed, the Team leader will use colour codes toannotate the results on the grid map (red: evidence found, green: no evidence found, grey: not survey – inaccessibility)
- Note down detailed quantities, types and locations of detected mines/ERW and other relevant information;
- Develop report on CHAs to be cleared, propose to release a part (or entire) of the area confirmed to be free from mine/ERW hazards through technical survey.
- Conduct EOD in line with SOP..

b) Collect information to develop the operational plan for demining work:

- Conduct clearance in the polygons that are equivalent to 1% of total contaminated area. Once a box has been completed, team leader will annotate the results on the grid map (with small grid

boxes): detailed quantities, types and locations of detected mines/ERW and other relevant information, following the format of TS completion report.

- Develop TS completion report of the areas to be cleared and set up warning sign-boards (if feasible), carry out EOD in line with SOP.
- In addition to the visual observation and technical survey in contaminated areas, TS teams ask key-informants to help them reach the reference points that mine/ERW are found lying on the ground or claimed to be burried deep under the ground.

4.7.2.2.3 TS completion report

a) TS completion report should reflect the following information:

- Method to select the surveyed area.
- Land owner/user;
- Total surveyed area;
- Survey duration
- Points where the GPS is fixed.
- Former assessment of the contamination status of the surveyed area.
- Topographic and natural features of the surveyed area.
- Type, status, density and depth of mine/ERW collected
- Maps of the surveyed area, coordinates of mine/ERW signals or other suspected signals.

b) Upon completion of TS, it is required to identify CHA and released areas within the SHA previously defined in the NTS;

c) Collect and obtain sufficient information to serve the development of a demining project for the areas confirmed to be contaminated with mine/ERW.

5 Responsibilities

5.1 National Mine Action Authority

- Accredit and license eligible and qualified organizations fit to undertake the NTS and TS activities
- Prepare and publish standards and guidelines for implementation of NTS & TS, QA & QC to be applied to NTS & TS operations.
- Use the information collected through the NTS and TS process to prepare tasking orders and annual demining work programs;
- Keep records of NTS & TS results, provide relevant documents for agencies as per regulation and upon request
- Monitor the outputs, conduct inspection & handover of areas identified through NTS & TS to be free from mine/ERW harzards

5.2 NTS & TS organizations

- Gain the legal status to operate in mine action and the accreditation needed to conduct NTS and TS;
- Apply the national standards for NTS and TS, and other regulations as specified in their contract or agreement
- Collect the necessary information as required by the survey documentation
- Manage and maintain documentation as specified by the NMAA
- Share information with relevant entities upon request
- Conduct a formal handover of surveyed areas to the organization conducting follow-on activities;
- Bear the liability for compensation (if any) due to the incorrect NTS & TS result.

Appendix A

(Informative)

NTS Questionnaire Form

QUESTIONNAIRE

Part 1: GENERAL INFORMATION AND CERTIFICATION

Segment 1. IDENTIFICATION

101	Administrative code:	Province/District/Commune (ward) ……/ ……/ ……
102	Province:	Name: ……
103	District	Name: ……
104	Commune/Ward/Town:	Name: ……
105 106	GPS fixed of the Commune People's Committee Longitude GCS WGS84 Latitude GCS WGS84	Longitude (E): …… Latitude (N): ……

Segment 2: CERTIFICATION OF LOCAL AUTHORITY

107	Survey start date: ……	Survey completion date: ……
108	Group leader (signed, full name) Completion date of the questionnaire	Full name: …… Signature: …… Day/month/year: ……
109	Authorized Commune (ward) Leader certifies: "*I confirm that these people have carried out a survey in this commune (ward)*"	Full name: …… Position: …… Signed and sealed: ……

Segment 3: CERTIFICATION OF TECHNICAL SUPERVISOR

110	Supervisor (signed, full name)	Full name: ……..…….. Signature: ……..……..

Segment 4. PROFILE OF THE SURVEY COMMUNE

STATISTICAL DATA OF COMMUNE (TO BE COMPLETED IN THE COMMUNE LEADER INTERVIEW)			
111	What is the distance in KM from Commune People's Committee (Ward) to the nearest district town or city? Name of that district town or city?	…….. km NAME (town, city)……	
112	What is total land area of the commune (ward) in hectares?	Total land area ..... ha	
113	What is area (in hectares) of the following land types: (TOTAL AREA OF THOSE LAND TYPES IS NOT EQUAL TO TOTAL AREA PROVIDED IN QUESTION 113 ABOVE)	LAND TYPE	AREA (HA)
		☐ HOMESTEAD LAND	
		☐ ANNUAL CROP LAND	
		☐ GARDEN LAND	
		☐ PERENNIAL CROPS LAND	
		☐ WATER SURFACE LAND	
		☐ FOREST	
		☐ CONSTRUCTION LAND	
		☐ TRANSPORTATION LAND	
		☐ IRRIGATION LAND	
		☐ UNUSED LAND	
114	What is the *main* source of drinking/cooking water for most people in this commune (ward)? (PLEASE TICK ONE ONLY)	☐ PIPED WATER ☐ RAIN WATER ☐ DRILLED WELL ☐ DUG WELL ☐ SURFACE WATER	
115	Is there any public medical facility or private practitioner in this commune (ward)? • commune (ward) health care unit • regional polyclinic • inter-commune medical centre • district/provincial hospital	☐ COMMUNE (WARD) HEALTH CARE UNIT ☐ REGIONAL POLYCLINIC ☐ INTER-COMMUNES MEDICAL CENTRE ☐ DISTRICT/PROVINCIAL HOSPITAL ☐ SANATORIUM AND REHABILITATION HOSPITAL ☐ MEDICAL SERVICE UNITS IN OFFICES,	

	• sanatorium and rehabilitation hospital • medical service units in offices, enterprises • private practitioner	ENTERPRISES ☐ PRIVATE PRACTITIONER
116	What percentage of households in the commune (ward) use the national power electricity network?	..... % of the households
117	Is there a post office in the commune (ward)?	☐ YES ☐ NO
118	Is there any market place in this commune (ward)? How many markets excluding the vendor market?	☐ YES, NUMBER _____ ☐ NO
119	Is there any petrol station or petrol agent in the commune (ward)?	☐ YES, NUMBER _____ ☐ NO
120	Is it possible for car to reach the commune center (ward) all year-round?	☐ YES ☐ NO
121	What types of the main road leading to the commune center (ward)?	☐ Asphalted road ☐ Gravel road ☐ Pathway ☐ Others
122	Is there any waterway passing by or leading to the commune (ward)?	☐ YES ☐ NO
123	Is there any train or bus station in the commune (ward)?	☐ YES ☐ Train station ☐ NO ☐ Bus station

Segment 5. EXCHANGE INFORMATION AND COMMUNE MAPPING EXERCISE

NOTES FOR THE SURVEYORS:

1. BEFORE START, OPEN THE MAP OF THE COMMUNE ON TABLE FOR ALL INFORMANTS TO SEE. GET PARTICIPANTS FAMILIAR WITH THE MAP. INTERVIEWERS SHOULD IDENTIFY THE BOUNDARIES OF THE COMMUNE/WARD ON THE MAP, MAIN ROADS, ETC.
2. LOCATE THE AREAS IN THE COMMUNE WHICH ARE STILL AFFECTED BY MINE/ERW BY ASKING QUESTIONS RELATING TO THE HISTORICAL CONTEXT
3. USE THE RED PEN AND DRAW ON MAP ALL AREAS IN THE COMMUNE THAT HAVE EVIDENCES OF MINE/ERW PRESENCE (BMA)
4. ASK THE KEY INFORMATIONS ABOUT THE SPECIFIC LOCATIONS WHERE THE LOCAL PEOPLE FREQUENTLY ENCOUNTER, SEE OR FIND MINE/ERW. (USE THE RED PEN TO MARK + AND DRAW ON THE + MARK)
5. USE THE RED PEN TO MARK LOCATIONS WHERE PEOPLE/ANIMALS HAVE BEEN KILLED OR INJURED BY UXO (MARK WITH + AND DRAW ON THE + MARK).
6. AFTER MARKING ALL SUSPECTED BOMB/MINE AREAS (BMA) AND LOCATION WHERE LOCAL PEOPLE ENCOUNTERED MINE/ERW (BM) BY COLOR PEN ON THE MAP, CONFIRM AGAIN WITH KEY INFORMANTS IF THEY ALL AGREE. ADJUST BMA, BM SIZES

AND POSITIONS IF NEEDED. PLACE A NUMBER INSIDE (OR NEXT TO) EACH BMA AND BM (USING CODE NUMBER BMA1, BMA2, BM1, BM2, ETC.)		
124	Was there any air attack (either aircraft or naval) in this commune (ward) and nearby coastal areas during the war? (USE RED MARKER ON THE MAP)	☐ YES , MARK ON THE MAP ☐ NO ☐ DO NOT KNOW
125	Was there any ground attack during war time? (USE RED MARKER ON THE MAP)	☐ YES , MARK ON THE MAP ☐ NO ☐ DO NOT KNOW
126	Were there any minefields or torpedoes located in this commune (ward) and nearby coastal areas during the war? (USE RED MARKER ON THE MAP)	☐ YES , MARK ON THE MAP ☐ NO ☐ DO NOT KNOW
127	Is there any location where people frequently encounter, saw or found MINE/ERW? If yes, please specify the specific locations? (USE RED PEN TO MARK + AND DRAW ON THE + MARK)	☐ YES , MARK ON THE MAP ☐ NO ☐ DO NOT KNOW
128	Was there any ammunition stockpiles in this commune (ward) during the war time? Locations? (USE RED MARKER ON THE MAP)	☐ YES , MARK ON THE MAP ☐ NO ☐ DO NOT KNOW
129	Was there any explosion of ammunition stockpiles in this commune during the war time? Locations? (USE RED MARKER ON THE MAP)	☐ YES , MARK ON THE MAP ☐ NO ☐ DO NOT KNOW
130	Was there any airplane falling down in this commune during the war time? Locations? (USE RED MARKER ON THE MAP)	☐ YES , MARK ON THE MAP ☐ NO ☐ DO NOT KNOW
131	Is there any location where people encountered, saw or found MINE/ERW? If yes, please specify the specific locations? (USE RED PEN TO MARK + AND DRAW ON THE + MARK)	☐ YES , MARK ON THE MAP ☐ NO ☐ DO NOT KNOW
132	Was there any MINE/ERW accident to the people in the last 5 years? If yes, please specify the specific location? (USE RED PEN TO MARK + ON THAT LOCATION)	☐ YES , MARK ON THE MAP ☐ NO ☐ DO NOT KNOW
133	Was there any MINE/ERW accident to the raised animals in the last 5 years? If yes, please specify the specific location? (USE RED PEN TO MARK + ON THAT LOCATION)	☐ YES , MARK ON THE MAP ☐ NO ☐ DO NOT KNOW

Part 2: BOMB/MINE AREA MODULE (BMA)

Segment 1: GENERAL INFORMATION

Administrative code (province/district/commune/ BMA No.):

……/……/……/…….

Survey team leader: ……

Date: ……/……/…….

NOTES FOR SURVEYORS: 1. BEFORE START GETTING INFORMATION FOR THIS SEGMENT, CHECK ON THE MAP WHETHER ALL RED AREAS HAS BEEN GIVEN A NUMBER (BMA1, BMA2...) 2. INFORM INTERVIEWEES OF MOVING TO ASK FOR DETAILED INFORMATION ABOUT EACH BMA WHICH HAS BEEN IDENTIFIED AND MARKED ON MAP. START FROM BMA1. SHOW INFORMANTS WHERE BMA1 IS ON THE MAP. 3. ASK FOR INFORMATION OF EACH BMA (MARKED RED) IN SEQUENCE. USE A SEPARATE BMA MODULE FOR EACH BMA. 4. UPON COMPLETION OF THIS PART, USE RED MARKER TO MARK BMAs ON THE MAP		
201	BMA No.: …… (the number specified in the map).	
202	Was BMA visited by visual inspection? Coordinates of a point anywhere within the BMA to be used as a locator to reference the BMA	Coord. fixed by WGS84: Longitude (E): …… Lattitude (N): …… ☐ YES ☐ NO ☐ GPS ---------- ☐ Taken from topographic map
203	Estimate area of the BMA (if the location was visited by data collectors)	Estimated length……(M) Estimated width ……..(M) Estimated area……..(m2) (DATA COLLECTORS SHOULD ADJUST BMA ON THE MAP IF DIFFERENT FROM SITE)
204	To what extent is the area useable? • Fully used • Partially in use • Completely blocked	☐ FULLY USED ☐ PARTIALLY IN USE ☐ COMPLETELY BLOCKED
205	If this area is partially used or completely blocked, is that because of MINE/ERW	☐ YES ☐ NO

	contamination?	
206	What are types of land in this BMA? (can tick more than one option) • Homestead land • Annual crop land • Garden land • Perennial land • Water surface land • Forestry land • Construction land • Transportation land • Irrigation land • Unused land • Others (pls specify)	☐ HOMESTEAD LAND ☐ ANNUAL CROP LAND ☐ GARDEN LAND ☐ PERENNIAL LAND ☐ WATER SURFACE LAND ☐ FORESTRY LAND ☐ CONSTRUCTION LAND ☐ TRANSPORTATION LAND ☐ IRRIGATION LAND ☐ UNUSED LAND ☐ OTHERS, SPECIFY…… …… …….....
207	What are the types of MINE/ERW contaminated in this BMA: (SHOW REF. PICTURES TO HELP KEY INFORMANTS IDENTIFY THE UXO TYPES; NOTE THE LOCAL NAMES OF THE UXO)	☐ DESTRUCTION BOMB ☐ BOMBLET ☐ PROJECTILE/MORTAR/BULLETS ☐ GRENADE ☐ AP MINE ☐ AT MINE ☐ OTHER UXO, SPECIFY…… …… ……..... ☐ UNKNOWN
208	In the past 5 years, how often have people saw, encountered or found UXO/ Landmine within the boundary of this BMA?	☐ YES, FREQUENTLY ☐ YES, RARELY ☐ NO, NEVER
209	In the past 5 years, is there any mines, ERW accidents within this BMA?	☐ YES ☐ NO ☐ DON'T KNOW
210	How deep are MINE/ERW expected to be located in this area? ▪ On the surface ▪ From 0m to 1m ▪ >1m (CAN TICK MORE THAN ONE BOXES)	☐ ON THE SURFACE ☐ FROM 0M TO 1.0M ☐ >1M ☐ DON'T KNOW
211	What types of hazardous areas?	☐ MILITARY AREAS ☐ FORMER COMBAT AREAS ☐ MINEFIELDS ☐ UNKNOWN

(THIS SESSION MAY INCLUDE DIFFERENT AREAS, EACH AREA SHOULD BE RECORDED IN SEPARATE SHEET)

Segment 2. BOMB & MINE SPOTS (BM) INSIDE OR OUTSIDE BMA

ID	Coordinate	Description of reference point	Types of encountered mine/ERW	Comments on the surrounding area

Segment 3: END OF THE KEY INFORMANTS MEETING

SURVEYORS SHALL COMPLY WITH THE FOLLOWING STEPS:

1. REVIEW THE BMA MODULES AND COMMUNE MAP
2. ASK FOR ASSISTANCE OF SEVERAL MOST RESOURCEFUL INFORMANTS IN GUIDING DATA COLLECTORS TO THE SITES REPORTED IN THE INTERVIEW. DOUBLE CHECK THE POSITION AND NUMBER ON THE MAP.
3. CLARIFY THE PROGRAM FOR THE REST OF THE DAY AND THE WORKING AGENDA OF THE TEAM IN THE COMMUNE. THIS MAY INCLUDE VISUAL VERIFICATION OF BMA AND IDENTICATION OF RECOMMENDED AREA FOR TECHNICAL SURVEY TO FOLLOW
4. THANK INFORMANTS FOR THE HOSPITALITY AND THE APPRECIATION FOR THE GOOD COOPERATION
5. ASK FOR ONE REPRESENTATIVE FROM INFORMANT GROUP TO EVALUATE THE MEETING
6. THEN, CERTIFY THE INTERVIEWING RESULTS AND LIST OF INTERVIEEWS AS REGULATED

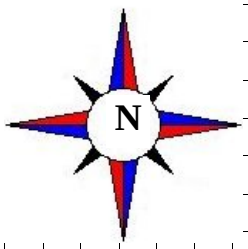
Appendix B

(Informative)

Sketch of surveyed area

SKETCH OF SURVEYED AREA

Administrative code: Province/District/Commune/BMA No.:
……../……../……../…….



1 box (5 mm) = m

LEGEND

- Where UXO/Landmine has been cleared (green dots).
- UXO/Landmine signal found but not yet cleared (red dots).

Boundery line of TS area (blue line).

X Point where the GPS is fixed

Sketched by: ……; Date: ……

Appendix C

(Informative)

Technical survey completion report

(UNIT NAME)

No:

SOCIALIST REPUBLIC OF VIETNAM
Independence – Freedom - Happiness

(Place), day……. month……. year ……

TECHNICAL SURVEY COMPLETION REPORT

Administrative code: Province/District/Commune/BMA No.:
……..……/……../……/……

Province (city): ……	District (ward, town) ……	Commune (ward, town) ……	Village ……
Date of technical survey: ……			Number of days: …
Is the surveyed plot currently in use?	☐ No ☐ Yes, If yes ☐ Partial or ☐ Full Use	Select one box for current land use ☐ 1. HOUSING/BUILT-UP LAND ☐ 2. ANNUAL CROP LAND ☐ 3. GARDEN LAND ☐ 4. PERENNIAL CROPS LAND ☐ 5. WATER SURFACE LAND ☐ 6. NATURAL FOREST ☐ 7. PLANTED FOREST ☐ 8. CONSTRUCTION LAND ☐ 9. TRANSPORTATION LAND ☐ 10. IRRIGATION LAND ☐ 11. CEMETERIES ☐ 12. MINERAL & SALT PRODUCTION ☐ 13. BRICK & TILE PRODUCTION ☐ 14. HISTORICAL & CULTURAL ☐ 15. MILITARY & DEFENSE LAND	
Future/expected land use after clearance (select one category listed above – write down its number):			
Who is the owner of the plot?:	☐ Household ☐ Commune ☐ State Company ☐ Private Company ☐ Other, specify:		
Centre of Plot: (by GPS): E: …… ; N: ……			

Area of plot (m^2): …….	Total of signals: ……..... ; includings: Landmine/UXO: …….. ; others: ……

Density of signal (signal/10 000 m^2): ……..; ; includings:Landmine/UXO: …….. ; others: ……

Cleared signals	Quantity and Depth					Conditions/Status
	Surface	Up to 0,3 m	Up to 3 m	Up to 5 m	Total	
Destruction bomb						
Mortar, attilery shell						
Bomblet, M79						
AT mines						
AP mines						
Other UXO						
Iron & steel						

Number of remaining signals (depth >5m) not yet cleared: ……

TS Team leader:	Signature:
Supervisor:	Signature:

Appendix D

(Informative)

Daily execution logsheet template

(UNIT NAME)

SOCIALIST REPUBLIC OF VIETNAM
Independence – Freedom - Happiness

(Place), day……. month…….. year ……

DAILY EXECUTION LOGSHEET

Construction work: ……

Clearance task: ……

Executed by: ……

Team No.:…… ; Team leader: ……..

Supervisor: ……

Executing location:…… ; Polygon No:…….. ; Total area: …….. m^2.

Daily execution volume

Item	Unit	Quantity	Note
- Ground cleareance equivalent to forest, level …	m^2		
- In-land clearance area up to the depth of 0.3 m	m^2		
- Handling of in-land signals up to the depth of 0.3 m	Signal		Level of land...
- In-land clearance area up to the depth of 0.3m - 3 m	m^2		
- Number of in-land signals up to the depth of 3m	Signal		
- Digging and handling of signal up to the depth of 3m	m^3		Level of land…
Results:			
- Bomb, ammunition fragments, scrap iron	Fragment		
- Destruction bombs	Unit		
- Bomblet	Unit		
- M79	Unit		
- Mortars, attilery shells	Unit		
- Mines	Unit		
- Grenades, anti-personnel ammunitions, other ERW	Unit		

Comments: ……

SUPERVISOR	TS TEAM LEADER
(*Signed, full name*)	(*Signed, full name*)

Appendix E

(Informative)

Basis for evaluation and decision-making of NTS & TS

E.1 Sources of information

- Military, police, militia units or former members of these units.

- Local authority, land owners

- Materials: map, database.

- Information collected through visual observation of the suspected areas.

E.2 Evidences for confirmation of contamination

- Visible mine/ERW or bomb craters.

- Visible mine/ERW fragments or their components

- Mine/ERW accidents/incidents.

- Mine/ERW explosions during burning or land use.

- Oral report to confirm whether mine/ERW exists or not.

- Records of minefields or archival data on mine/ERW, former survey reports.

- Armed combat or military activities.

- Information on mine/ERW laid or not laid in the area

- Announcement on the types of mine/ERW cleared in the surrounding areas

- The area has been used by local people for a certain period of time for breeding, agriculture, forestry, hunting, collecting of firewood and food.

- Infrastructure has been used or has not been used for a certain period of time.

E.3 Level of confidence on the source of information and evidence.

- A villager reported to lay mines in a specific area is considered to be a highly reliable source of information and strong evidence.

- A sketch of a minefield with uncertain geographic location is considered to be less reliable and a weak evidence.

E.4 Cancellation criteria

- No armed combat or military activities in the areas.

- No reliable information on the bomb strikes or mine/ERW laid in the area..

- Previously contaminated but has been cleared.

- No visible bomb craters.

- No mine/ERW fragments or their components.

- Land has been used for breeding and agriculture for a certain period of time.
- No evidence on mine/ERW from any source of information.
- Infrastructure has been used for a certain period of time.
- There is enough confident to release previously suspected areas..

E.5 Criteria for confirmation of a contaminated area

- Reliable claim on bombing strikes, mine/ERW laid in the area..
- Visible mine/ERW fragments or their components.
- Land has not been used due to mine/ERW accidents happened in the area.
- It is required to conduct technical survey before clearance.

Appendix F

(Informative)

Field survey marking

F.1 General principles

- The warning signs shall be made by easily identifiable objects (such as painted cairns of stones or marks painted on walls or trees). Such marks must be clear, and their locations documented as accurately as possible on hazard area maps, to facilitate the physical handover of the ground from the technical survey to the demining organizations.
- It is the responsibility of the technical survey organizations to ensure the consistency, recognizability, and durability of the marking system to the local population.

F.2 Reference points

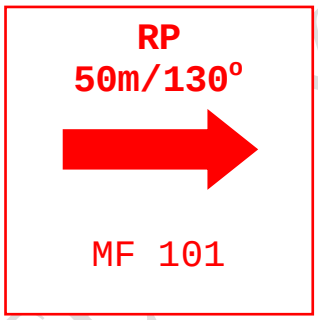


Figure 1: Reference point marker

A reference point, also referred to as a 'landmark', is a fixed point of reference at a short distance outside the hazardous area. It should be an easily recognized and durable feature (such as a cross-roads or the abutment of a bridge) which can be used to assist in navigating to one or more benchmarks. The co-ordinates of a reference point should be surveyed by resection or GPS.

Reference points shall be:

- clearly visible from 30 m in normal daylight conditions from the normal direction of approach (Figure 01- marking of the reference point)
- marked with a sign which clearly distinguishes the sign from other marked area signs. The sign shall include a unique identification number, and show the distance and bearing to the benchmark. Details should be reflected on the surface of the sign permanently. The sign should be applied to a surface or attached to a post at approximately 1.25 m above ground level.

Figure 1 shows a sign indicating a reference point for Minefield Number 101. It indicates that the benchmark for Minefield 101 is located 50 m from this point on a magnetic compass bearing of 130o

F.3 Benchmarks

Benchmarks are fixed points of reference used to locate a marked and recorded hazard or hazardous area. A benchmark should normally be located at a short distance outside the hazardous area.

Benchmarks shall be:

- be surveyed by resection or GPS;
- clearly visible from 30 m in normal daylight conditions from the normal direction of approach; and
- marked with a sign which can be clearly distinguished from other marked area signs. The sign shall include a unique identification number. Details should be stamped, engraved, embossed, or marked in some other permanent way. The sign should be applied to a surface or attached to a post approximately 1.25 m above ground level.

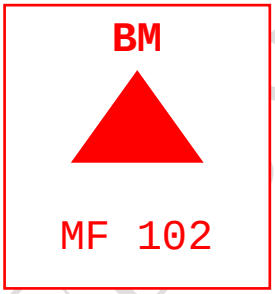


Figure 2: Benchmark sign

E.g: Figure 2 shows a sign indicating a benchmark sign for Minefield Number 102

F.4 Turning points

Turning points are fixed points on the ground which indicate a change in direction of the perimeter of the hazardous area.

Turning points shall be:

- be surveyed by resection or GPS with the coordinates formally recorded;
- clearly visible from 30 m in normal daylight conditions from the normal direction of approach;
- marked by three survey markers: one at a change in direction, and one on each side on the perimeter. The markers should be spaced 1.0m apart, clearly marked and recorded. Buried metal objects should also be used to mark all turning points for permanent future reference.
- marked with a sign which is clearly distinguished from the other marked area signs. Details should be stamped, engraved, embossed, or marked in some other permanent way. The

sign should be applied to a surface or attached to a post approximately 1.25m above ground level.

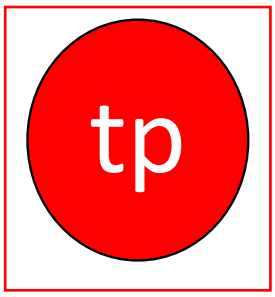


Figure 3: Example of a turning point sign

E.g: After completing clearance around the specified bounderies, the markers used in the survey process should be replaced by concrete stakes (size 10cmx10cmx100cm). Those stakes are painted "CLEARED" in red and buried around the cleared areas. The top of the stakes must be placed 20cm higher than the ground and directed to the cleared area.

F.5 Intermediate points

The distance between adjacent signs and markers on the perimeter of a hazardous area should not exceed 50m. Intermediate survey markers shall be used between turning points that are more than 50m apart. Intermediate survey markers shall be made of permanent or semi-permanent material, and should be buried or driven into the ground. Intermediate points need not be marked with a sign.